National Institute of Environmental Health Sciences

The effect of temperature on hospital admissions in nine California counties

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Abstract:

Objectives This study examined the association between mean daily apparent temperature and hospital admissions for several diseases in nine California counties from May to September, 1999 to 2005. Methods We conducted a time-stratified case-crossover study limited to cases with residential zip codes located within 10 km of a temperature monitor. County-specific estimates were combined, using a random effects meta-analysis. The analyses also considered the effects of ozone and particulate matter (PM 2.5). Results We found that a 10°F increase in mean apparent temperature was associated with a 3.5% [95% confidence interval (CI) 1.5–5.6] increase in ischemic stroke and increases in several other disease-specific outcomes including all respiratory diseases (2.0%, 95% CI 0.7–3.2), pneumonia (3.7%, 95% CI 1.7–3.7), dehydration (10.8%, 95% CI 8.3–13.6), diabetes (3.1%, 95% CI 0.4–5.9), and acute renal failure (7.4%, 95% CI 4.0–10.9). There was little evidence that the temperature effects we found were due to confounding by either PM 2.5 or ozone. Conclusion Our results indicate that increases in ambient temperature have important public health impacts on morbidity.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Air Pollution, Meteorological Factors, Temperature

Air Pollution: Ozone, Particulate Matter

Temperature: Fluctuations

Geographic Feature:

resource focuses on specific type of geography

None or Unspecified

Geographic Location:

resource focuses on specific location

United States

Health Impact:

specification of health effect or disease related to climate change exposure

Cardiovascular Effect, Diabetes/Obesity, Infectious Disease, Respiratory Effect, Urologic Effect

Cardiovascular Effect: Heart Attack, Stroke, Other Cardiovascular Effect

Cardiovascular Disease (other): heart failure

Infectious Disease: Foodborne/Waterborne Disease

Foodborne/Waterborne Disease (other): intestinal infectious diseases

Respiratory Effect: Asthma, Bronchitis/Pneumonia, Other Respiratory Effect

Respiratory Condition (other) : chronic bronchitis

Population of Concern: A focus of content

Population of Concern:

populations at particular risk or vulnerability to climate change impacts

Children, Elderly

Resource Type:

format or standard characteristic of resource

Research Article

Timescale:

time period studied

Time Scale Unspecified